We claim

1. A composition comprising a heparin binding molecule (HBM), wherein the heparin binding molecule comprises a heparin binding unit (HBU).

2. The composition of claim 1, further comprising a linker and a second HBU.

3. The composition of claim 2, further comprising a second linker and a third HBU.

4. The composition of claim 2, wherein the heparin binding unit comprises a peptide having at least 80% identity to SEQ ID NO: 6.

5. The composition of claim 4, wherein any variation of SEQ ID NO: 6 is a conservative substitution.

6. The composition of claim 3, wherein the first, second, and third HBU comprise SEQ ID NO:1.

7. The composition of claim 1, wherein the HBM is fused to a bacterial glutathione-s-transferase (GST).

8. The composition of claim 7, wherein the GST-HBM is also fused to a bacterial alkaline phosphatase (BAP).

9. The composition of claim 7, wherein the GST-HBM is also fused to an enhanced green fluorescent protein (EGFP).

10. A nucleic acid comprising a sequence, wherein the sequence encodes a heparin-binding molecule (HBM) nucleic acid.

11. An assay for detecting heparin, the assay comprising contacting a heparin binding molecule (HBM) with heparin forming a HBM-heparin complex and detecting the ZHBM-heparin complex.

12. The assay of claim 11, wherein the HBM is the HBM of claims 1-8.

13. The assay of claim 12, wherein the assay comprises an ELISA.

14. A method for determining the amount of heparin in a sample, the method comprising,

a) incubating the sample with an heparin binding molecule (HBM) in a first incubation forming a HBM mixture, wherein the HBM mixture allows for the formation of an HBM-heparin complex

b) detecting the amount of HBM-heparin complex in the mixture.

15. The assay of claim 14, wherein the HBM is the HBM of claims 1-8.

16. The method of claim 15, wherein the HBM comprises a capture tag.

17. The method of claim 16, wherein the capture tag is biotin.

18. The method of claim 17, wherein the heparin is incubated with a capture tag receptor.

19. The method of claim 18, wherein the capture tag receptor is streptavidin.

20. The method of claim 19, wherein the capture tag receptor is attached to a solid surface.

21. The method of claim 20, wherein the solid surface is a 96 well micro titer plate.

22. The method of claim 20, wherein the solid surface is a microarray.

23. The method of claim 15, further comprising the step of washing the HMB mixture.

24. The method of claim 20, further comprising the step of blocking the unbound capture tag receptors with a blocking agent.

25. The method of claim 24, wherein the blocking agent is biotin.

26. A method of detecting heparin, the method comprising: (a) obtaining a sample; (b) applying the sample to an assay, wherein the assay utilizes an HBM; and (c) detecting the heparin.

27. A method of detecting heparin, the method comprising: (a) obtaining a sample; (b) contacting the sample with an HBM; and (c) assaying for HBM-heparin complexes.

28. A method of detecting heparin, the method comprising (a) mixing an HBM and heparin sample together, forming an HBM mixture; and (b) determining if an HBM-heparin complex is present in the mixture.

29. The method of claim 28, wherein the sample is obtained from a subject.

30. The method of claim 29, wherein the HBM is the HBM of claims 1-8.

31. The method of claim 30, wherein the step of detection comprises a colormetric, fluorescence, or radio labeled assay.

32. The method of claim 30, wherein the HBM is attached to a solid support.

33. The method of claim 30, wherein the sample is plasma, blood, urine, or serum.

34. A method of removing heparin from a sample, comprising: (a) immobilizing an HBM; (b) exposing the HBM to the sample under conditions that allow for HBM-heparin complex formation.

35. The method of claim 34, wherein the HBM is the HBM of claims 1-8.

36. The method of claim 30, wherein the sample is plasma, blood, urine, or serum.

37. The method of claim 35, wherein the HBM is immobilized by adsorbing it to Sepharose activated beads.

38. The method of claim 35, wherein the HBM is immobilized to a micro titer plate.

39. The method of claim 35, wherein the HBM is immobilized to a microassay chip.

40. A method for detecting heparin on coated surfaces, comprising: (a) exposing the surfaces to an HBM fused to a reporter molecule (b) washing the coated surface to remove excess HBM fused to the reporter molecule; (c) and assaying the reporter molecule.

41. The method of claim 40, further comprising the step of determining arrangment of heparin on the coated surface.

42. The method of claim 40, wherein the HBM is the HBM of claims 1-8, further comprising a reporter molecule.

43. The method of claim 40, wherein the coated surface is a heparinized stent.

44. The method of claim 40, wherein step (c), assaying the reporter molecule, is done by fluorescent microscopy.

45. A kit comprising an HBM, color developing reagent, control standards, wash buffer, and instructions.

46. The kit of claim 45, wherein the HBM is the HBM of claims 1-9.

47. The kit of claim 46, further comprising a reagent to detect the HBM.

48. The kit of claim 47, wherein the reagent is a colormetric, fluorescent, or radiographic reagent.

49. The kit of claim 45, further comprising control standards.

50. The kit of claim 45, further comprising a buffer.

51. The kit of claim 45, further comprising a microtiter plate.

52. The kit of claim 50, wherein the microplate is heparin-coated.

53. The kit of claim 50, wherein the microplate is coated with the HBM.

54. The kit of claim 45, wherein the HBM is on a strip.

55. The kit of claim 55, wherein the strip changes color when heparin is detected.

56. The kit of claim 54, wherein the strip can be contacted with urine, blood, serum, or plasma to detect heparin.

57. The method of claim 27, wherein the heparin is low molecular weight heparin.

58. The method of claim 27, wherein the heparin is unfractionated heparin.

59. The method of claim 27, wherein the heparin detected is an inactive portion of an unfractionated heparin molecule.

60. The method of claim 57, wherein the low molecular weight heparin is lovenox.

61. The method of claim 57, wherein the heparin is a synthetic heparin.

62. The kit of claim 45, wherein the HBM is conjugated to HRP.

63. The composition of claim 1, wherein the HBM is conjugated to HRP.

64. The method of claim 61, wherein the synthetic heparin is idraparinux.

65. An apparatus comprising a medical device coated with HBM.

66. The apparatus of claim 65, wherein the medical device is a stent.

67. A method of manufacturing a medical device, comprising coating the medical device with an HBM during manufacture.

68. The method of claim 67, wherein heparin is coated onto the device at the same as the HBM.

69. The method of claim 67, wherein heparin is coated onto the device after the HBM.

70. The method of claim 67, further comprising implanting the medical device into a subject and allowing the HBM to bind heparin.

71. A method of neutralizing heparin in a subject comprising administering an effective amount of HBM to the subject.